

# **Standard for quality inspection and appraisal of space frame structure**

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## Chapter 1 Generals

**1.0.1** This standard is worked out to reinforce the management of the quality of fabrication and erection of space frame structure, carry out the quality inspection and appraisal of space frame engineering.

**1.0.2** This standard is applicable to the quality inspection and appraisal of each sub-divisional work in the space frame engineering in industrial and civil buildings.

The sub-divisional work included in this standard is the fabrication of the joints and members, erection of the space frame, painting, corrosion prevention and fire protection coating. The results of inspection and appraisal of the sub-divisional work are taken into account in determining the quality grade of the divisional work of the main structure.

**1.0.3** This standard is based on the national standard *Unified standard for quality inspection and appraisal of architectural installation work* GBJ 300-88, the industrial standard *Specification for design and construction of space frame*

*structure* JGJ 7-91. In the quality inspection and appraisal for the space frame structure, the national standard *Unified standard for quality inspection and appraisal of architectural installation work* GBJ 301-88, the current national standards *Code for construction and acceptance of steel structure engineering* GBJ 205, the industrial standards *Space frame made of bolted sphere joints* JGJ 75.1-91 and *Space frame made of welded sphere joints* JGJ 75.2-91 and other relative standards shall be complied with.

**1.0.4** The determining of quality grade of the sub-divisional work shall satisfy the following requirements:

1. Qualified

1) The guaranteed items shall comply with the requirements of the corresponding standards of quality inspection and appraisal;

2) The sampled places (or items) of basic items shall comply with the requirements for qualified in the corresponding standards of quality inspection and appraisal;

3) Within the number of items sampled which allow deviation, 70% and above of the measured values shall be within the allowable errors specified by the corresponding standards of quality inspection and appraisal.

2 Excellent:

1) The guaranteed items shall comply with the requirements of the corresponding standards of quality inspection and appraisal;

2) The sampled places (or items) of basic items shall comply with the requirements for qualified in the corresponding standards of quality inspection and appraisal; If 50% or above of the places (or items) satisfy the requirements for excellent, this item is excellent; the excellent items shall be more than 50% of all the inspection items.

3) Within the number of items sampled which allow deviation, 90% and above of the measured values shall be within the allowable errors specified by the corresponding

standards of quality inspection and appraisal.

**1.0.5** The determining of overall quality grade of the space frame structure in which the fabrication and erection work are finished by a single project team shall satisfy the following requirements:

1. Qualified: All the quality of subdivision work is qualified.

2. Excellent: All the quality of subdivision work is qualified, in which 50% and above is excellent.

**1.0.6** When some parts of the space frame are supplied by professional manufacturer, these parts are not included in the determining of the quality standard. But the contractors of the space frame structure shall be responsible for their procurement and acceptance according to the requirements in this standard. Their strength test reports and certificates of conformity shall be inspected and the items specified in the relative articles in this standard shall be re-inspected. All shall be qualified.

## Chapter 2 Welded sphere joint

### (I) Guaranteed items

**Article 2.0.1** The type, specification, quality of the raw material used in making the welded sphere joint shall satisfy the requirements of design and relative standards and codes.

The welding rod, welding flux, welding wire and shielding gas used in the welding shall satisfy the design requirements and special requirements of structural steel welding.

Inspection method: watch and inspect the certificate of conformity, test report and the records of welding rod baking. Sample to re-test if there exists question.

**Article 2.0.2** Non-damage inspection shall be made to the welds of the welded sphere, whose quality shall satisfy the second

grade requirements specified by the current national standards  
*Code for construction and acceptance of steel structure engineering* GBJ 205.

Number to be inspected: every 300 welds of the finished spheres of the same specification are taken as a lot (for project with less than 300 welds, the total welds are taken as a lot). Sample randomly 3 for every lot to inspect. If these 3 welds are qualified, this lot is taken as qualified. If one fails, sample double number, when all 6 sampled pass, this sample can be taken as qualified.

Inspection method: ultrasonic flaw detection or inspect the certificate of conformity

**Article 2.0.3** As for the inspection of the welded sphere joint, the specimen shall be made by welding the steel tubes and sphere specified by the design. Then the bearing capacity test of the axial tension and axial compression is made to the specimen. The inspection shall satisfy the requirements specified in Appendix 1.

Number to be inspected: every 600 of the most unfavorable loading joints for a project are taken as a lot, for the project with less than 600 joints, the total are taken as a lot, sample randomly 3 for every lot to test.

Inspection method: Tested by the machine for tension or compression test or corresponding loading equipment. Inspect the test report or the certificate of conformity on the field.

As to the space frame structure of public building whose safety grade is the first grade and whose span is over 40m, or there exists question concerning the quality, the joints shall be re-inspected on the field.

If any case of the following occurs, it is regarded that the sphere reaches its limit bearing capacity and fails.

1. While continuing loading, the readings of the dial does not increase, this reading is taken as the limit bearing capacity.

2. Take the peak value of the curve of  $F-\Delta$  ( $F$ --Loading



value;  $\Delta$ --The deformation along the direction of corresponding loading) as the limit bearing capacity.

(II) Basic items

**Article 2.0.4** The surface of the welded sphere shall satisfy the following requirements:

Qualified: There is no evident corrugation, and the height of local roughness is less than 1.5mm.

Excellent: Smooth and flat, without corrugation, and the height of local roughness is less than 1.0mm.

Number to be inspected: inspect 5% of joints for each specification, but not less than 5 for each type.

Inspection method: inspect by curved cover die and steel rule.

**Article 2.0.5** The thickness reduction shall satisfy the following requirements:

Qualified: The thickness reduction is less than or equal to 13%, and not greater than 1.5mm.

Excellent: The thickness reduction is less than or equal to 10%, and not greater than 1.2mm.

Number to be inspected: the same as Article 2.0.4.

Inspection method: by ultrasonic thickness detector.  
Re-inspect on the field.

(III) Allowable deviations for certain items

**Article 2.0.6** The allowable deviation and inspection methods shall satisfy the requirements specified in Table 2.0.6.

**Table 2.0.6 Allowable deviations and inspection methods**

No.	Item	Allowable deviation (mm)	Inspection method
1	The leveling of the height of the sphere weld with the outer surface of the sphere	$\pm 0.5$	Inspect 8 equally divided points along the perimeter of the weld by weld gauge.
2	The diameter of the sphere $D \leq 300$	$\pm 1.5$	Inspect respectively 3 values for each sphere by calipers and slide calipers.
3	The diameter of the sphere $D > 300$	$\pm 2.5$	
4	Roundness of the sphere $D \leq 300$	$\leq 1.5$	Measure three pairs with each pair perpendicular to each other by calipers and slide calipers, the average of the three differences of diameters is counted.
5	Roundness of the sphere $D > 300$	$\leq 2.5$	
6	The align deviation of two	$\leq 1.0$	Inspect with cover die and slide calipers, take the

	half spheres		maximum align deviation for each sphere.
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Inspection method: Inspect 5% for each specification, and not less than 5 spheres.

## Chapter 3 Bolted sphere joints

### Section 1 Bolted sphere

#### (I) Guaranteed items

**3.1.1** The steel used in making bolted sphere joints shall satisfy the design requirements and the technical requirements and standard for corresponding materials.

Inspection method: watch and inspect the certificate of conformity and test reports. Sample to re-test if there exists question.

**3.1.2** Overburning, cracks, incipient faults in the bolted sphere are strictly forbidden.

Number to be inspected: Sample 5% of each specification and inspect, and shall not be less than 5 spheres. If any crack is found, every sphere shall be inspected.

Inspection method: Visionary inspection with 10 times magnifying glass or magnetic power flaw detection method and other effective methods.

**3.1.3** The dimensions of the threads shall satisfy requirements concerning coarse threads in the national standard *General purpose metric screw threads--Basic dimensions* GB 196-81. The errors of the threads shall satisfy the 6H precision requirements in the national standard *General purpose screw threads--Tolerances and fits* GB 197-81.

Number to be inspected: Sample 5% of each specification and inspect, and shall not be less than 5 spheres.

Inspection method: standard screw gauge

**3.1.4** The tension strength test of the maximum bolt hole shall be carried out to the finished product of spheres. The load which causes the shear failure of the threads of the bolt hole is taken as the limit bearing capacity of the bolted sphere. In testing, the depth of the bolts fastened into the bolt hole is  $1d$  ( $d$  is the nominal diameter of the bolt).

The test shall satisfy the requirements in Appendix 1 of this standard concerning the bearing capacity of the specimen.

Number to be inspected: every 600 bolted spheres of the same specification whose loading are most unfavorable in the project as a lot, (for project with less than 600 bolted spheres, the total spheres are taken as a lot), sample randomly 3 as a group in each lot and inspect.

Inspection method: by tension test machine. Test together with high strength bolt specified in Article 3.2.4. Inspect the certificate of conformity and test report of the product on the field.

As to the space frame structure of public building whose safety grade is the first grade and whose span is over 40m, or there exists question concerning the quality, the spheres shall be re-inspected on the field.

(II) Allowable deviations for certain items

**3.1.5** The allowable deviations and inspection methods for bolted spheres shall satisfy the requirements in Table 3.1.5.

Number to be inspected: Sample 5% of each specification and inspect, and shall not be less than 5 spheres.

**Table 3.1.5 Allowable deviations and inspection methods for bolted spheres**

No.	Item		Allowable deviation (mm)	Inspection method
1	Diameter of the blank sphere	$D \leq 120$	+2.0 -1.0	Inspect with calipers and slide



		$D > 120$	+3.0 -1.5	calipers.
2	Roundness of the sphere	$D \leq 120$	1.5	
		$D > 120$	2.5	
3	Distance between the surface of the bolt hole and the center of the bolted sphere		$\pm 0.20$	Inspect with slide calipers, measuring mandrel and tongue.
4	Parallelism of the end surfaces of the two bolt holes on the same axis	$D \leq 120$	0.20	Inspect with slide calipers and tongue.
		$D > 120$	0.30	
5	Angle between two neighboring bolt holes		$\pm 30'$	Inspect with measuring mandrel, tongue and dividing head.
6	Perpendicularity between the surface of the bolt hole and the axis		$0.5\%r$	Inspect with dial indicator.

Notes:  $r$  is the radius of the surface of the bolt hole.

## Section 2 High strength bolts

### (I) Guaranteed items

**3.2.1** The steel used in making high strength bolts shall satisfy the design requirements and the technical requirements and standard for corresponding materials.

Inspection method: Inspect the certificate of conformity and test reports.

**3.2.2** The grade of 8.8s or 10.9s high strength bolts specified in the national standard *High strength bolts with large hexagon head for steel structures* GB 1228-91 shall be used. And the high strength bolts shall also satisfy the national standard *Specifications of high strength bolts with large hexagon head, large hexagon nuts, and plain washers for steel structures* GB 1231-91. The threads shall be the 6g grade specified in *General purpose screw threads--Tolerances and fits* GB 197-81.

Inspection method: Inspect the certificate of conformity and test reports.

**3.2.3** The test of surface hardness shall be made to each high strength bolt. The hardness for 8.8s high strength bolt shall lie in the range of HRC21-29°; the hardness for 10.9s high strength bolt shall lie in the range of HRC32-36°. Cracks and damage are strictly forbidden.

Inspection method: Hardness meter, 10 times magnifying glass or magnetic power flaw detection. Re-inspect before use.

**3.2.4** The bearing capacity of high strength bolts shall satisfy the requirements for allowable value of the coefficient for tension strength ( $\gamma_u$ ).

Number to be inspected: every 600 bolts of the same specification as a lot, (for project with less than 600 bolted spheres, the total spheres are taken as a lot), sample randomly 3 as a group in each lot and inspect.

Inspection method: Take the matching high strength bolt and bolted sphere, carry out the strength test with tension test machine. Inspect the certificate of conformity and test report of the product on the field. If there exists question, sample and re-inspect.

(II) Allowable deviations for certain items

**3.2.5** The allowable deviations and inspection methods for high strength bolts shall satisfy the requirements in Table 3.2.5.

**Table 3.2.5 Allowable deviations and inspection methods for  
high strength bolts**

No.	Item		Allowable deviation (mm)	Inspection method
1	Length of threads ( $t$ -thread pitch)		$+2t$ $0$	Inspect with steel ruler and slide calipers.
2	Length of bolt		$+2t$ $-0.8t$	
3	Keyslot	Slot depth	$\pm 0.2$	
4		Linearity	$<0.2$	
5		Position	$<0.5$	

Number to be inspected: Sample 5% of each specification and inspect, and shall not be less than 5 spheres.

### Section 3 Blanking plates, end cones and sleeves

(I) Guaranteed items

**3.3.1** The steel used in making blanking plates, end cones and sleeves shall satisfy the design requirements and the technical requirements and standard for corresponding materials.

Inspection method: Same as Article 3.2.1.

**3.3.2** There shall not be cracks, overburning, and oxide skin for the appearance of the blanking plates, end cones and sleeves.

Number to be inspected: Sample 5% of each kind and inspect, and shall not be less than 5 pieces.

Inspection method: Inspect with magnifying glass.

(II) Allowable deviations for certain items

**3.3.3** The allowable deviations and inspection methods for blanking plates, end cones and sleeves shall satisfy the requirements in Table 3.3.3.

**Table 3.3.3 Allowable deviations and inspection methods for  
blanking plates, end cones and sleeves**

No.	Item	Allowable deviation (mm)	Inspection method
1	Diameter of the blanking plate and end cone	+0.5	Inspect with slide calipers.
2	Thickness of the blanking plate and of the bottom plate of the end cone	+0.5 -0.2	
3	Parallelism of the plane of blanking plate and the bottom plate of end cone	0.1	Inspect with dial indicator and V-block.
4	Concentricity of the assembling stage between the blanking plate and the hole of the end cone and the steel tube	0.2	Inspect with dial indicator and V-block.
5	Thickness of the wall of end cone	+0.2 0	Inspect with slide calipers.
6	Concentricity of the inner	0.5	Inspect with slide

	hole and the circumcircle		calipers, dial indicator and measuring mandrel.
7	Length of the sleeve	$\pm 0.2$	Inspect with slide calipers.
8	Perpendicularity between the two end planes of the sleeve and the axis	$0.5\%r$	Inspect with slide calipers, dial indicator and measuring mandrel.
9	Parallelism of the two end planes of the sleeve	0.3	

Notes:

1. The blanking plates, end cones and sleeves shall be inspected and appraised respectively.

2.  $r$  is the radius of the circumcircle of the sleeve.

Number to be inspected: Sample 5% of each kind and inspect, and shall not be less than 10 pieces.



## Chapter 4 Welded steel plate joints

### (I) Guaranteed items

**4.0.1** The steel plate and welding materials used in making welded steel plate joints shall satisfy the design requirements and the technical requirements and standards for corresponding materials.

Inspection method: Visionary inspection; Inspect the certificate of conformity, test reports and the records of baking of welding rods.

**4.0.2** The welds shall satisfy the design requirements. The quality standard of the welds, except those carried out in accordance with the requirements for which there are definite design instructions, shall satisfy the grade 2 requirements specified in the current national standard *Code for construction and acceptance of steel structure engineering* GBJ 205.

Number to be inspected: Sample 5% of each specification of joint and inspect, and shall not be less than 5 pieces.

Inspection method: Visionary inspection; Inspect with weld calipers and steel ruler.

(II) Allowable deviations for certain items

**4.0.3** The allowable deviations and inspection methods for steel plate joints shall satisfy the requirements in Table 4.0.3.

**Table 4.0.3 Allowable deviations and inspection methods for steel plate joints**

No.	Item	Allowable deviation	Inspection method
1	Length and width of gusset	$\pm 2.0\text{mm}$	Inspect with steel ruler.
2	Thickness of gusset	$+0.5\text{mm}$	Inspect with slide calipers.
3	Angle between crossing	$\pm 20'$	Inspect with

	shape gusset		standard angle gauge.
4	Angle between crossing shape gusset and cover plate	$\pm 20'$	

Number to be inspected: Sample 5% of each specification and inspect, and shall not be less than 5 pieces.

## Chapter 5 Members

### (I) Guaranteed items

**5.0.1** The type, specification and quality of the steel used in making the members shall satisfy the design requirements and corresponding standards.

The welding rod, welding flux, welding wire and shielding gas used in the welding shall satisfy the design requirements and special requirements of structural steel welding.

Inspection method: watch and inspect the certificate of conformity, test reports and the records of welding rod baking.

**5.0.2** The welds between the steel tube members and the blanking plate and end cone shall be made according to design requirements. When equal strength connecting is required, the quality standard of the welds shall satisfy the second grade requirements specified by the current national standards *Code*

*for construction and acceptance of steel structure engineering*  
GBJ 205.

Number to be inspected: Sample 5% of each kind of member and inspect, and shall not be less than 5 pieces.

Inspection method: ultrasonic flaw detection.

**5.0.3** Tension strength test shall be made to the welds between the steel tube member and the blanking plate or end cone. Their coefficients of bearing capacity inspection shall satisfy the requirements in Appendix 1.

Number to be inspected: Take the members of most unfavorable of loading in which every 300 members of the same specification are taken as a lot (when less than 300, the total members are taken as a lot). Sample randomly 3 members as a group for every lot and inspect.

Inspection method: Test with tension test machine by the manufacture. Inspect the test report and certificate of conformity on the field.

(II) Allowable deviations for certain items

**5.0.4** The allowable deviations and inspection methods for the members shall satisfy the requirements specified in Table 5.0.4.

**Table 5.0.4 Allowable deviations and inspection methods for  
the members**

No.	Item	Allowable deviation (mm)	Inspection method
1	Fabrication length of members made of steel angles	$\pm 2$	Inspect with steel ruler.
2	Fabrication length of steel tubular members in space frame made of welded spheres	$\pm 1$	Inspect with steel ruler and dial indicator.
3	Finished product length of steel tubular members in space frame made of bolted spheres	$\pm 1$	
4	Non-linearity of the axis of the member	$L/1000$ and $\leq 5$	Inspect with dial indicator and V-block.
5	Perpendicularity between the blanking plate or end cone and the axis of the steel tube	$0.5\%r$	

Note:  $L$  is the length of the member;  $r$  is the diameter of the

blanking plate or the end of end cone.

Number to be inspected: Sample 5% of each type of members and inspect, and shall not be less than 5 members.



## Chapter 6 Erection of the space frame structure

### (I) Guaranteed items

**6.0.1** The specification, type and welding material of the joints, members and connecting parts at various places of the space frame shall satisfy the design requirements.

Number to be inspected: Sample 5% of each type of member and inspect, and shall not be less than 5 pieces.

Inspection method: Referring to the certificate of conformity and drawings or design modification notice. Inspect with steel ruler, slide calipers and calipers, etc.

**6.0.2** The appearance of all the welds shall be inspected after the assembling of the space frame made of welded joints. And the results shall be documented. The butted welds between the tension member and the sphere in space frame of large and middle span made of steel tubes shall be inspected by

non-damage flaw detector. The quality standard of the welds shall satisfy the requirements specified in Article 5.0.2 of this standard.

Number to be inspected: For non-damage flaw detection, not less than 20% of all the welds, the sampling places are jointly determined by the designer and the contractor.

Inspection method: Non-damage flaw detection, the whole length of the welds shall be inspected.

## (II) Basic items

**6.0.3** The centerlines of the member connected by a joint shall intersect at one point. For bolted sphere and welded sphere, this point is the center of the sphere; for welded steel plate joint, it shall be in accord with the drawing. The deviation shall not be greater than 1mm.

Number to be inspected: Inspect the each joint of the upper chords and bottom chords on the longitudinal and transverse

axes.

Inspection method: Inspect with theodolite, steel ruler, cover die or inspect the records of forming die.

**6.0.4** After the finish of the assembling of the space frame structure and the finish of the roofing system construction, the deflections of the space frame shall be measured respectively. The measured deflection shall not 15% greater than design value.

The observing points of deflection: for small span, one point at the middle of the bottom chords; for large and middle span, five points, which are one point at the middle of the bottom chords and two points each for the quarter points of the span of bottom chords.

(III) Allowable deviations for certain items

**6.0.5** The allowable deviations and inspection methods for the erection of the space frame structure shall satisfy the

requirements in Table 6.0.5.

**Table 6.0.5 Allowable deviations and inspection methods for  
the erection of the space frame structure**

N o.	Item			Allowable deviation (mm)	Inspection method
1	Deviation of the centers of the joints of the assembling unit			2.0	Inspect with steel ruler and auxiliary measuring device.
2	The small assembling unit is a single pyramid.	Length of chord $l$		$\pm 2.0$	
3		Diagonal length of the upper chords		$\pm 3.0$	
4		Height of the pyramid		$\pm 2.0$	
5	The assembling unit is a planar truss (lattice).	Span $L$	$\leq 24\text{m}$	+3.0 -7.0	
			$> 24\text{m}$	+5.0 -10.0	
6		Height at the mid-span		$\pm 3.0$	
7		Cambering required		+10	

		by design No cambering	$\pm L/5000$	
8	Length of the space frame unit by strip or by block	$\leq 20\text{m}$	$\pm 10$	Inspect with steel ruler and auxiliary measuring device.
		$> 20\text{m}$	$\pm 20$	
9	Length of the space frame unit by strip or by block composed by multiple continuous spans and supported at points	$\leq 20\text{m}$	$\pm 5$	
		$> 20\text{m}$	$\pm 10$	
10	At the time of the acceptance	Longitudinal and transverse length	$\pm L/2000$ and $\leq 30$	
11	of the overall space frame	Deviation of the center of the bearing	$L/3000$ and $\leq 30$	Inspect with theodolite.
12	structure	Space Elevation	$L_1/400$	Inspect with

		frame supported along the sides	difference between two neighboring bearings (at distance $L_1$ )	and $\leq 15$	
13			Elevation difference between the highest and the lowest bearing	30	level.
14			Elevation difference between two neighboring bearings (at distance $L_1$ ) in space frame supported at multiple points	$L_1/800$ and $\leq 30$	
15			Linearity of the axis of the member	$l/1000$ and $\leq 5$	Inspect with wire and ruler.

Number to be inspected: for items 1~4, 10% of the small

units and not less than 5 units; for items 5~9, all the assembling units; for items 10~14, all parts of the space frame structure; No. 15 item, 5% for each type of member and not less than 5. The sampling places shall be jointly determined by the designer and the contractor.

## Chapter 7 Work of painting, corrosion-prevention, coating for fire protection

**7.0.1** The work of painting for rust protection, corrosion-protection, coating for fire protection for the space frame structure shall be carried out after the quality inspection and appraisal of the member fabrication or erection according to this standard. The inspection and appraisal of rust protection, corrosion protection, and fire protection shall be respectively carried out.

### (I) Guaranteed items

**7.0.2** The paints, dilution agent, firming agent and the type, specification and thickness of coating of corrosion and fire protection coatings shall satisfy the design requirements and the relative technical specifications or special requirements.



Inspection method: Inspect the certificate of conformity or re-inspection reports.

**7.0.3** The treatment of base layer shall satisfy the design requirements and technical specifications. The surface of the steel shall display metal hue after acid washing and treatment by shot-blasting (sand-blasting). For the surface of steel after treatment by mechanical de-rusting, rolled skin in close contact with the metal can be retained. There shall not be impurities such as welding slag, welding scar, dust, oil stain and water on the base layer of the coating.

Inspection method: Visionary inspection and inspection by shovel blade

**7.0.4** As to space frame made of bolted sphere joints, all the gaps shall be tightly caulked with oil loam, and the redundant bolt holes shall be sealed.

Inspection method: Visionary inspection

**7.0.5** It is strictly forbidden to paint the unassigned and miss the

assigned painting. Peeling and rusting are forbidden.

Inspection method: Visionary inspection

(II) Basic items

**7.0.6** The appearance of the coating shall satisfy the following requirements:

Qualified: evenly painted, no evident corrugation, flow and dropping.

Excellent: evenly painted, uniform hue; no evident corrugation, flow and dropping; Color separation line is clear and orderly.

Number to be inspected: respectively sample randomly 5% of the number of members and joints and inspect three places for one member.

Inspection method: Visionary inspection.

**7.0.7** The compensation painting shall satisfy the following requirements:

Qualified: Compensation painting layers are whole.

Excellent: Make the compensation coating by layer according to coating technique to the damaged coatings and the coating shall be wholesome and tightly adhered.

Number to be inspected: The same as the requirements in Article 7.0.6.

Inspection method: Visionary inspection.

(III) Allowable deviations of items

**7.0.8** The allowable deviations and inspection method for the painting, corrosion protection and thickness of coating for fire protection shall satisfy the requirements specified in Table 7.0.8.

Number to be inspected: respectively sample randomly 5% of the number of members and joints, inspect three places for one member, the value for each place is the average of the thickness of coating at three points spaced within 5cm~10cm.

**Table 7.0.8 Allowable deviations and inspection method for the coatings**

No.	Item	Thickness required ( $\mu\text{m}$ )	Allowable deviation ( $\mu\text{m}$ )	Inspection method
1	Thickness of dry paint film	Indoor: 125 Outdoor: 150	-25	Measured by dry paint film thickness meter.
2	Coatings for fire and corrosion protection	Design thickness ( $d$ )	$+0.2d$ 0	Measured by dry paint film thickness meter or calipers.